

Unit 2

Day 4

Section 1.7

Rationalizing again

$$\textcircled{66} \quad \frac{5}{\sqrt[3]{2}} - \frac{2}{\sqrt[3]{16}} + \frac{1}{\sqrt[3]{54}} = \left[\frac{5}{\sqrt[3]{2}} \right] \left[\frac{2}{\sqrt[3]{2}} \right] \left[\frac{1}{\sqrt[3]{2}} \right]$$

$$= \frac{30}{\sqrt[3]{2}} - \frac{6}{\sqrt[3]{2}} + \frac{2}{\sqrt[3]{2}}$$

$$= \frac{26}{\sqrt[3]{2}} = \frac{13}{3} \cdot \frac{\sqrt[3]{2^2}}{\sqrt[3]{2^2}}$$

$$= \frac{13 \sqrt[3]{4}}{6}$$

$$\begin{aligned}
 (67) \quad \frac{-4}{\sqrt[3]{3}} + \frac{1}{\sqrt[3]{24}} + \frac{2}{\sqrt[3]{81}} &= \frac{-4}{\sqrt[3]{3}} + \frac{1}{\sqrt[3]{2^3 \cdot 3}} + \frac{2}{\sqrt[3]{3^4}} \\
 &= \frac{-4}{\sqrt[3]{3}} \cdot \frac{6}{6} + \frac{1}{2\sqrt[3]{3}} \cdot \frac{3}{3} + \frac{-22}{3\sqrt[3]{3}} \\
 &= \frac{-24}{6\sqrt[3]{3}} + \frac{3}{6\sqrt[3]{3}} + \frac{-4}{\sqrt[3]{3}} \\
 &= \frac{-25}{6\sqrt[3]{3}} \cdot \frac{\sqrt[3]{3^2}}{\sqrt[3]{3^2}} = \frac{-25\sqrt[3]{9}}{18}
 \end{aligned}$$

$$1) \quad \frac{\sqrt{3}}{\sqrt{2} + \sqrt{3}} \cdot \frac{\sqrt{2} - \sqrt{3}}{\sqrt{2} - \sqrt{3}} = \frac{\sqrt{6} - 3}{2 - 3} = \frac{\sqrt{6} - 3}{-1} = -\sqrt{6} + 3$$

$$3 - \sqrt{6}$$

2)

$$\frac{\sqrt{2}-2}{4\sqrt{2}-3\sqrt{3}} \cdot \frac{4\sqrt{2}+3\sqrt{3}}{4\sqrt{2}+3\sqrt{3}} = \frac{8+3\sqrt{6}-8\sqrt{2}-6\sqrt{3}}{32-27}$$
$$= \frac{8+3\sqrt{6}-8\sqrt{2}-6\sqrt{3}}{5}$$

3)

$$\frac{2x}{3+\sqrt{x+y}} \cdot \frac{3-\sqrt{x+y}}{3-\sqrt{x+y}} = \frac{6x-2x\sqrt{x+y}}{9-(x+y)} = \frac{6x-2x\sqrt{x+y}}{9-x-y}$$

Unit 2

Day 5

Rational Exponents

$$a^{\frac{1}{n}} = \sqrt[n]{a}$$

1)

$$4^{\frac{1}{2}} = \sqrt{4}$$

$$= 2$$

2)

$$(24x^6)^{\frac{1}{3}} = \sqrt[3]{24x^6}$$

$$= 2x^2 \sqrt[3]{3}$$

3)

$$-4^{-\frac{1}{2}} =$$

$\swarrow \frac{1}{2}$

$$-4^{-\frac{1}{2}} = -\frac{1}{4^{\frac{1}{2}}}$$

$$= -\frac{1}{\sqrt{4}} = -\frac{1}{2}$$

$$a^{\frac{m}{n}} = \sqrt[n]{(a)^m} \text{ or } \left(\sqrt[n]{a}\right)^m$$

$$1) (-8)^{\frac{2}{3}} =$$

$$\sqrt[3]{(-8)^2} = \sqrt[3]{(-2)^6}$$

$$= \frac{(-2)^2}{4}$$

$$2) (24a^7)^{\frac{4}{3}} =$$

$$\sqrt[3]{(2^3 \cdot 3a^7)^4}$$

$$\sqrt[3]{2^{12} \cdot 3^4 a^{28}}$$

$$2^4 \cdot 3a^9 \sqrt[3]{3a} = 16a^9 \sqrt[3]{3a}$$

$$3) \left(\frac{16}{5}\right)^{-\frac{2}{3}} = \left(\frac{5}{16}\right)^{\frac{2}{3}}$$

$$= \sqrt[3]{\left(\frac{5}{24}\right)^2} = \sqrt[3]{\frac{5^2}{2^8}}$$

$$\frac{\sqrt[3]{25}}{2^{\frac{8}{3}}} \cdot \frac{\sqrt[3]{2}}{\sqrt[3]{2}} = \frac{\sqrt[3]{50}}{8}$$

Odds & Ends:

$$\sqrt{\sqrt[3]{5}} =$$

$$\therefore \text{therefore } \sqrt[n]{\sqrt[m]{a}} =$$

$$\sqrt[3]{\sqrt{\sqrt[4]{x}}} =$$

Write in a simplified radical form

$$4) \sqrt[6]{4} =$$

$$5) \sqrt[9]{64} =$$

6)

$$\sqrt[3]{5} \cdot \sqrt{2} =$$

7)

$$\sqrt[5]{a^2} \cdot \sqrt{b} =$$

8)

$$\sqrt{\left(7 - \sqrt{52}\right)^2} =$$

9)

$$\sqrt{\left(-2 - a^2\right)^2} =$$

10)

$$\sqrt{(\sqrt{2} - 1)^4} - \sqrt{(2 - \sqrt{8})^2}$$

Continue with Day 5 instruction, if time!

HOMEWORK

Unit 2 Day 5

Continue with Day 5 instruction, if time!

Homework:

Day 4 homework